MATH 2010 FALL 2025 HOMEWORK #1

Write clearly. Both questions carry equal weight.

For each proposition, write a formal, properly formatted proof. You should only use the basic results that we have covered in class.

(1) Consider integers m and n. If $m^2 + n^2$ is odd, then m and n have opposite parity.

(2) Let x and y be real numbers, with $y < x < 0$. Then $x^8 < y^8$.